

ASM-MN-214

Chassis for Short Range Modems



data communications

The Access Company

ASM-MN-214

Chassis for Short Range Modems Installation and Operation Manual

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Limited Warranty

RAD warrants to DISTRIBUTOR that the hardware in the ASM-MN-214 to be delivered hereunder shall be free of defects in material and workmanship under normal use and service for a period of twelve (12) months following the date of shipment to DISTRIBUTOR.

If, during the warranty period, any component part of the equipment becomes defective by reason of material or workmanship, and DISTRIBUTOR immediately notifies RAD of such defect, RAD shall have the option to choose the appropriate corrective action: a) supply a replacement part, or b) request return of equipment to its plant for repair, or c) perform necessary repair at the equipment's location. In the event that RAD requests the return of equipment, each party shall pay one-way shipping costs.

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This Agreement shall be construed and governed in accordance with the laws of the State of Israel.

Product Disposal



To facilitate the reuse, recycling and other forms of recovery of waste equipment in protecting the environment, the owner of this RAD product is required to refrain from disposing of this product as unsorted municipal waste at the end of its life cycle. Upon termination of the unit's use, customers should provide for its collection for reuse, recycling or other form of environmentally conscientious disposal.



General Safety Instructions

The following instructions serve as a general guide for the safe installation and operation of telecommunications products. Additional instructions, if applicable, are included inside the manual.

Safety Symbols



This symbol may appear on the equipment or in the text. It indicates potential safety hazards regarding product operation or maintenance to operator or service personnel.



Danger of electric shock! Avoid any contact with the marked surface while the product is energized or connected to outdoor telecommunication lines.



Protective ground: the marked lug or terminal should be connected to the building protective ground bus.



Some products may be equipped with a laser diode. In such cases, a label with the laser class and other warnings as applicable will be attached near the optical transmitter. The laser warning symbol may be also attached.

Please observe the following precautions:

- Before turning on the equipment, make sure that the fiber optic cable is intact and is connected to the transmitter.
- Do not attempt to adjust the laser drive current.
- Do not use broken or unterminated fiber-optic cables/connectors or look straight at the laser beam.
- The use of optical devices with the equipment will increase eye hazard.
- Use of controls, adjustments or performing procedures other than those specified herein, may result in hazardous radiation exposure.

ATTENTION: The laser beam may be invisible!

In some cases, the users may insert their own SFP laser transceivers into the product. Users are alerted that RAD cannot be held responsible for any damage that may result if non-compliant transceivers are used. In particular, users are warned to use only agency approved products that comply with the local laser safety regulations for Class 1 laser products.

Always observe standard safety precautions during installation, operation and maintenance of this product. Only qualified and authorized service personnel should carry out adjustment, maintenance or repairs to this product. No installation, adjustment, maintenance or repairs should be performed by either the operator or the user.

Handling Energized Products

General Safety Practices

Do not touch or tamper with the power supply when the power cord is connected. Line voltages may be present inside certain products even when the power switch (if installed) is in the OFF position or a fuse is blown. For DC-powered products, although the voltages levels are usually not hazardous, energy hazards may still exist.

Before working on equipment connected to power lines or telecommunication lines, remove jewelry or any other metallic object that may come into contact with energized parts.

Unless otherwise specified, all products are intended to be grounded during normal use. Grounding is provided by connecting the mains plug to a wall socket with a protective ground terminal. If a ground lug is provided on the product, it should be connected to the protective ground at all times, by a wire with a diameter of 18 AWG or wider. Rack-mounted equipment should be mounted only in grounded racks and cabinets.

Always make the ground connection first and disconnect it last. Do not connect telecommunication cables to ungrounded equipment. Make sure that all other cables are disconnected before disconnecting the ground.

Connecting AC Mains

Make sure that the electrical installation complies with local codes.

Always connect the AC plug to a wall socket with a protective ground.

The maximum permissible current capability of the branch distribution circuit that supplies power to the product is 16A. The circuit breaker in the building installation should have high breaking capacity and must operate at short-circuit current exceeding 35A.

Always connect the power cord first to the equipment and then to the wall socket. If a power switch is provided in the equipment, set it to the OFF position. If the power cord cannot be readily disconnected in case of emergency, make sure that a readily accessible circuit breaker or emergency switch is installed in the building installation.

In cases when the power distribution system is IT type, the switch must disconnect both poles simultaneously.

Connecting DC Power

Unless otherwise specified in the manual, the DC input to the equipment is floating in reference to the ground. Any single pole can be externally grounded.

Due to the high current capability of DC power systems, care should be taken when connecting the DC supply to avoid short-circuits and fire hazards.

DC units should be installed in a restricted access area, i.e. an area where access is authorized only to qualified service and maintenance personnel.

Make sure that the DC power supply is electrically isolated from any AC source and that the installation complies with the local codes.

The maximum permissible current capability of the branch distribution circuit that supplies power to the product is 16A. The circuit breaker in the building installation should have high breaking capacity and must operate at short-circuit current exceeding 35A.

Before connecting the DC supply wires, ensure that power is removed from the DC circuit. Locate the circuit breaker of the panel board that services the equipment and switch it to the OFF position. When connecting the DC supply wires, first connect the ground wire to the corresponding terminal, then the positive pole and last the negative pole. Switch the circuit breaker back to the ON position.

A readily accessible disconnect device that is suitably rated and approved should be incorporated in the building installation.

If the DC power supply is floating, the switch must disconnect both poles simultaneously.

Connecting Data and Telecommunications Cables

Data and telecommunication interfaces are classified according to their safety status.

The following table lists the status of several standard interfaces. If the status of a given port differs from the standard one, a notice will be given in the manual.

Ports	Safety Status
V.11, V.28, V.35, V.36, RS-530, X.21, 10 BaseT, 100 BaseT, Unbalanced E1, E2, E3, STM, DS-2, DS-3, S-Interface ISDN, Analog voice E&M	SELV Safety Extra Low Voltage: Ports which do not present a safety hazard. Usually up to 30 VAC or 60 VDC.
xDSL (without feeding voltage), Balanced E1, T1, Sub E1/T1	TNV-1 Telecommunication Network Voltage-1: Ports whose normal operating voltage is within the limits of SELV, on which overvoltages from telecommunications networks are possible.
FXS (Foreign Exchange Subscriber)	TNV-2 Telecommunication Network Voltage-2: Ports whose normal operating voltage exceeds the limits of SELV (usually up to 120 VDC or telephone ringing voltages), on which overvoltages from telecommunication networks are not possible. These ports are not permitted to be directly connected to external telephone and data lines.
FXO (Foreign Exchange Office), xDSL (with feeding voltage), U-Interface ISDN	TNV-3 Telecommunication Network Voltage-3: Ports whose normal operating voltage exceeds the limits of SELV (usually up to 120 VDC or telephone ringing voltages), on which overvoltages from telecommunication networks are possible.

Always connect a given port to a port of the same safety status. If in doubt, seek the assistance of a qualified safety engineer.

Always make sure that the equipment is grounded before connecting telecommunication cables. Do not disconnect the ground connection before disconnecting all telecommunications cables.

Some SELV and non-SELV circuits use the same connectors. Use caution when connecting cables. Extra caution should be exercised during thunderstorms.

When using shielded or coaxial cables, verify that there is a good ground connection at both ends. The grounding and bonding of the ground connections should comply with the local codes.

The telecommunication wiring in the building may be damaged or present a fire hazard in case of contact between exposed external wires and the AC power lines. In order to reduce the risk,

there are restrictions on the diameter of wires in the telecom cables, between the equipment and the mating connectors.

Caution	To reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cords.
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Attention	Pour réduire les risques d'incendie, utiliser seulement des conducteurs de télécommunications 26 AWG ou de section supérieure.
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Some ports are suitable for connection to intra-building or non-exposed wiring or cabling only. In such cases, a notice will be given in the installation instructions.

Do not attempt to tamper with any carrier-provided equipment or connection hardware.

Electromagnetic Compatibility (EMC)

The equipment is designed and approved to comply with the electromagnetic regulations of major regulatory bodies. The following instructions may enhance the performance of the equipment and will provide better protection against excessive emission and better immunity against disturbances.

A good ground connection is essential. When installing the equipment in a rack, make sure to remove all traces of paint from the mounting points. Use suitable lock-washers and torque. If an external grounding lug is provided, connect it to the ground bus using braided wire as short as possible.

The equipment is designed to comply with EMC requirements when connecting it with unshielded twisted pair (UTP) cables. However, the use of shielded wires is always recommended, especially for high-rate data. In some cases, when unshielded wires are used, ferrite cores should be installed on certain cables. In such cases, special instructions are provided in the manual.

Disconnect all wires which are not in permanent use, such as cables used for one-time configuration.

The compliance of the equipment with the regulations for conducted emission on the data lines is dependent on the cable quality. The emission is tested for UTP with 80 dB longitudinal conversion loss (LCL).

Unless otherwise specified or described in the manual, TNV-1 and TNV-3 ports provide secondary protection against surges on the data lines. Primary protectors should be provided in the building installation.

The equipment is designed to provide adequate protection against electro-static discharge (ESD). However, it is good working practice to use caution when connecting cables terminated with plastic connectors (without a grounded metal hood, such as flat cables) to sensitive data lines. Before connecting such cables, discharge yourself by touching ground or wear an ESD preventive wrist strap.

FCC-15 User Information

This equipment has been tested and found to comply with the limits of the Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the Installation and Operation manual, may cause harmful interference to the radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canadian Emission Requirements

This Class A digital apparatus meets all the requirements of the Canadian Interference-Causing Equipment Regulation.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Warning per EN 55022 (CISPR-22)

Warning

This is a class A product. In a domestic environment, this product may cause radio interference, in which case the user will be required to take adequate measures.

Avertissement

Cet appareil est un appareil de Classe A. Dans un environnement résidentiel, cet appareil peut provoquer des brouillages radioélectriques. Dans ces cas, il peut être demandé à l'utilisateur de prendre les mesures appropriées.

Achtung

Das vorliegende Gerät fällt unter die Funkstörgrenzwertklasse A. In Wohngebieten können beim Betrieb dieses Gerätes Rundfunkstörungen auftreten, für deren Behebung der Benutzer verantwortlich ist.

Mise au rebut du produit



Afin de faciliter la réutilisation, le recyclage ainsi que d'autres formes de récupération d'équipement mis au rebut dans le cadre de la protection de l'environnement, il est demandé au propriétaire de ce produit RAD de ne pas mettre ce dernier au rebut en tant que déchet municipal non trié, une fois que le produit est arrivé en fin de cycle de vie. Le client devrait proposer des solutions de réutilisation, de recyclage ou toute autre forme de mise au rebut de cette unité dans un esprit de protection de l'environnement, lorsqu'il aura fini de l'utiliser.

Instructions générales de sécurité

Les instructions suivantes servent de guide général d'installation et d'opération sécurisées des produits de télécommunications. Des instructions supplémentaires sont éventuellement indiquées dans le manuel.

Symboles de sécurité



Avertissement

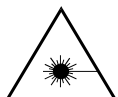
Ce symbole peut apparaître sur l'équipement ou dans le texte. Il indique des risques potentiels de sécurité pour l'opérateur ou le personnel de service, quant à l'opération du produit ou à sa maintenance.



Danger de choc électrique ! Evitez tout contact avec la surface marquée tant que le produit est sous tension ou connecté à des lignes externes de télécommunications.



Mise à la terre de protection : la cosse ou la borne marquée devrait être connectée à la prise de terre de protection du bâtiment.



Avertissement

Certains produits peuvent être équipés d'une diode laser. Dans de tels cas, une étiquette indiquant la classe laser ainsi que d'autres avertissements, le cas échéant, sera jointe près du transmetteur optique. Le symbole d'avertissement laser peut aussi être joint.

Veuillez observer les précautions suivantes :

- Avant la mise en marche de l'équipement, assurez-vous que le câble de fibre optique est intact et qu'il est connecté au transmetteur.
- Ne tentez pas d'ajuster le courant de la commande laser.
- N'utilisez pas des câbles ou connecteurs de fibre optique cassés ou sans terminaison et n'observez pas directement un rayon laser.
- L'usage de périphériques optiques avec l'équipement augmentera le risque pour les yeux.
- L'usage de contrôles, ajustages ou procédures autres que celles spécifiées ici pourrait résulter en une dangereuse exposition aux radiations.

ATTENTION : Le rayon laser peut être invisible !

Les utilisateurs pourront, dans certains cas, insérer leurs propres émetteurs-récepteurs Laser SFP dans le produit. Les utilisateurs sont avertis que RAD ne pourra pas être tenue responsable de tout dommage pouvant résulter de l'utilisation d'émetteurs-récepteurs non conformes. Plus particulièrement, les utilisateurs sont avertis de n'utiliser que des produits approuvés par l'agence et conformes à la réglementation locale de sécurité laser pour les produits laser de classe 1.

Respectez toujours les précautions standards de sécurité durant l'installation, l'opération et la maintenance de ce produit. Seul le personnel de service qualifié et autorisé devrait effectuer l'ajustage, la maintenance ou les réparations de ce produit. Aucune opération d'installation, d'ajustage, de maintenance ou de réparation ne devrait être effectuée par l'opérateur ou l'utilisateur.

Manipuler des produits sous tension

Règles générales de sécurité

Ne pas toucher ou altérer l'alimentation en courant lorsque le câble d'alimentation est branché. Des tensions de lignes peuvent être présentes dans certains produits, même lorsque le commutateur (s'il est installé) est en position OFF ou si le fusible est rompu. Pour les produits alimentés par CC, les niveaux de tension ne sont généralement pas dangereux mais des risques de courant peuvent toujours exister.

Avant de travailler sur un équipement connecté aux lignes de tension ou de télécommunications, retirez vos bijoux ou tout autre objet métallique pouvant venir en contact avec les pièces sous tension.

Sauf s'il en est autrement indiqué, tous les produits sont destinés à être mis à la terre durant l'usage normal. La mise à la terre est fournie par la connexion de la fiche principale à une prise murale équipée d'une borne protectrice de mise à la terre. Si une cosse de mise à la terre est fournie avec le produit, elle devrait être connectée à tout moment à une mise à la terre de protection par un conducteur de diamètre 18 AWG ou plus. L'équipement monté en châssis ne devrait être monté que sur des châssis et dans des armoires mises à la terre.

Branchez toujours la mise à la terre en premier et débranchez-la en dernier. Ne branchez pas des câbles de télécommunications à un équipement qui n'est pas mis à la terre. Assurez-vous que tous les autres câbles sont débranchés avant de déconnecter la mise à la terre.

Connexion au courant du secteur

Assurez-vous que l'installation électrique est conforme à la réglementation locale.

Branchez toujours la fiche de secteur à une prise murale équipée d'une borne protectrice de mise à la terre.

La capacité maximale permmissible en courant du circuit de distribution de la connexion alimentant le produit est de 16A. Le coupe-circuit dans l'installation du bâtiment devrait avoir une capacité élevée de rupture et devrait fonctionner sur courant de court-circuit dépassant 35A.

Branchez toujours le câble d'alimentation en premier à l'équipement puis à la prise murale. Si un commutateur est fourni avec l'équipement, fixez-le en position OFF. Si le câble d'alimentation ne peut pas être facilement débranché en cas d'urgence, assurez-vous qu'un coupe-circuit ou un disjoncteur d'urgence facilement accessible est installé dans l'installation du bâtiment.

Le disjoncteur devrait déconnecter simultanément les deux pôles si le système de distribution de courant est de type IT.

Connexion d'alimentation CC

Sauf s'il en est autrement spécifié dans le manuel, l'entrée CC de l'équipement est flottante par rapport à la mise à la terre. Tout pôle doit être mis à la terre en externe.

A cause de la capacité de courant des systèmes à alimentation CC, des précautions devraient être prises lors de la connexion de l'alimentation CC pour éviter des courts-circuits et des risques d'incendie.

Les unités CC devraient être installées dans une zone à accès restreint, une zone où l'accès n'est autorisé qu'au personnel qualifié de service et de maintenance.

Assurez-vous que l'alimentation CC est isolée de toute source de courant CA (secteur) et que l'installation est conforme à la réglementation locale.

La capacité maximale permmissible en courant du circuit de distribution de la connexion alimentant le produit est de 16A. Le coupe-circuit dans l'installation du bâtiment devrait avoir une capacité élevée de rupture et devrait fonctionner sur courant de court-circuit dépassant 35A.

Avant la connexion des câbles d'alimentation en courant CC, assurez-vous que le circuit CC n'est pas sous tension. Localisez le coupe-circuit dans le tableau desservant l'équipement et fixez-le en position OFF. Lors de la connexion de câbles d'alimentation CC, connectez d'abord le conducteur de mise à la terre à la borne correspondante, puis le pôle positif et en dernier, le pôle négatif. Remettez le coupe-circuit en position ON.

Un disjoncteur facilement accessible, adapté et approuvé devrait être intégré à l'installation du bâtiment.

Le disjoncteur devrait déconnecter simultanément les deux pôles si l'alimentation en courant CC est flottante.

Declaration of Conformity

Manufacturer's Name: RAD Data Communications Ltd.
Manufacturer's Address: 24 Raoul Wallenberg St., Tel Aviv 69719, Israel
declares that the product:
Product Name: ASM-MN-214

conforms to the following standard(s) or other normative document(s):

EMC:	EN 55022 (1994)	Limits and methods of measurement of radio disturbance characteristics of information technology equipment.
	EN 50082-1 (1992)	Electromagnetic compatibility - Generic immunity standards for residential, commercial and light industry.
Safety:	EN 60950 (1992/93)	Safety of information technology equipment, including electrical business equipment.

Supplementary Information:

The product herewith complies with the requirements of the EMC Directive 89/336/EEC and the Low Voltage Directive 73/23/EEC. The product was tested in a typical configuration.

Tel Aviv, December 10th, 1996



Haim Karshen
VP Quality

European Contact: RAD Data Communications GmbH, Otto-Hahn-Str. 28-30, 85521 Ottobrunn-Riemerling, Germany

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Installation and Operation

1. Introduction

The ASM-MN-214 is a rack-mount chassis for modems, CSUs/DSUs and converters. The chassis accommodates up to 14 cards, and supports more than 20 different types of cards. Any combination of plug-in cards can be installed. Cards can be removed or inserted during operation without affecting the operation of other cards. It can be powered from either AC or DC power sources, or from both.

The chassis can be used as a concentration point for multiple baseband links supporting last mile or campus applications.

Figure 1 shows a typical application.

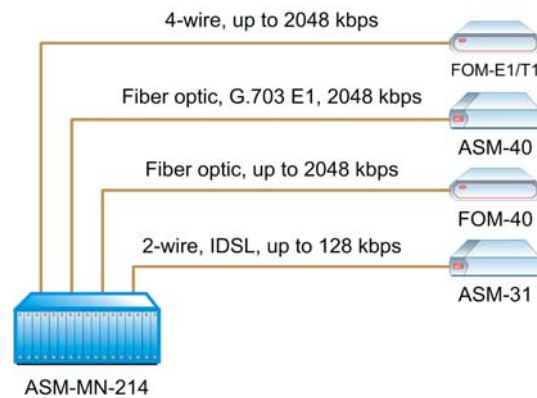


Figure 1. Typical ASM-MN-214 Application

2. Physical Description

ASM-MN-214 is a 19-inch, 4U high, rack-mount chassis. A 3-D view of a typical unit is shown in [Figure 2](#).

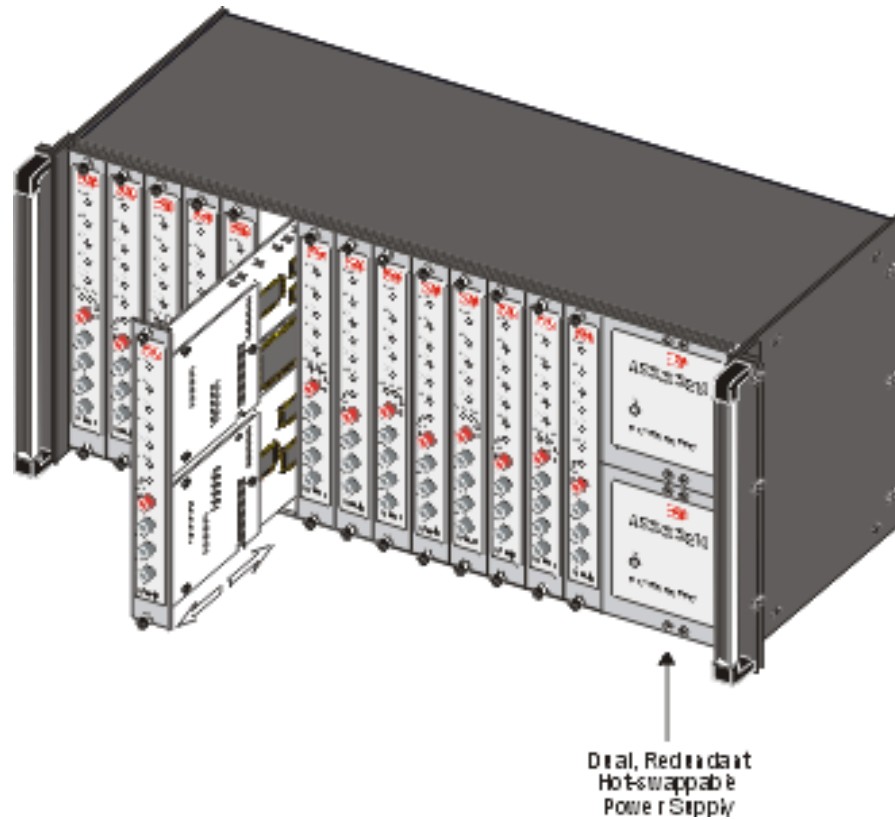


Figure 2. ASM-MN-214 Chassis

3. Power Supply

The ASM-MN-214 chassis can accept both AC or DC power supplies (PS). LED indicators located on the ASM-MN-214 front panel show activity when the power supply is connected to the mains plug (see [Figure 2](#)). The power supply supports the full chassis with any combination of cards.

AC Supply (100, 115 or 230 VAC)

The AC power supply of the ASM-MN-214 accepts 100, 115 or 230 VAC, $\pm 10\%$, 50/60 Hz.

DC Supply (24 or -48 VDC)

The DC power supply is -48 VDC (-36 to -72 VDC) or 24 VDC (18 to 32 VDC). It uses a DC/DC converter module to provide the power required for the cards.

Power Supply with Redundancy

The ASM-MN-214 chassis can accommodate two separate power supplies, operating together and sharing the load of the whole chassis. If either of the power supplies fails, the other one will continue to supply power to the full chassis.

The activity of each of these two power supplies is indicated by a LED. They should both light when mains power is provided.

Each power supply can be replaced during operation without affecting the operation of other modems (hot swapping).

➤ **To change the power supply:**

1. Loosen the two screws on the power supply.
2. Slide the power supply away from the ASM-MN-214 unit.
3. Replace the power supply.
4. Check that the red Power light is ON.

Note *AC and DC power supplies may be combined in the same cage.*

The plug-in cards are powered from the ASM-MN-214 power supply via its edge connector. Each modem card has two fuses which protect the entire system against power failure caused by a short circuit in one card.

4. Line and DTE Connectors

For each of the 14 cards, the rear panel (see [Figure 3](#)) contains line and DTE connectors.

Line Interface

Line interface of ASM-MN-214 may terminate in the following connectors:

- 5-screw terminal block
- BNC coaxial
- RJ-45.

Terminal Block Option

The terminal block contains five screws for connecting the transmit and receive pairs and ground, if present. The transmit pair is connected to the terminals marked XMT, the receive pair – to the terminals marked RCV, while the fifth screw is a terminal for optional ground connection. As a terminal block option, a terminal block protective cover is placed over the interface connectors. Modems operating over 2-wire lines use XMT terminals for both the transmit and receive pairs. [Figure 3](#) illustrates a rear panel of ASM-MN-214 with a terminal block line connector.

When connecting ASM-MN-214 to coaxial cables, you can use the CIA/214-TB-BNC interface adapter.

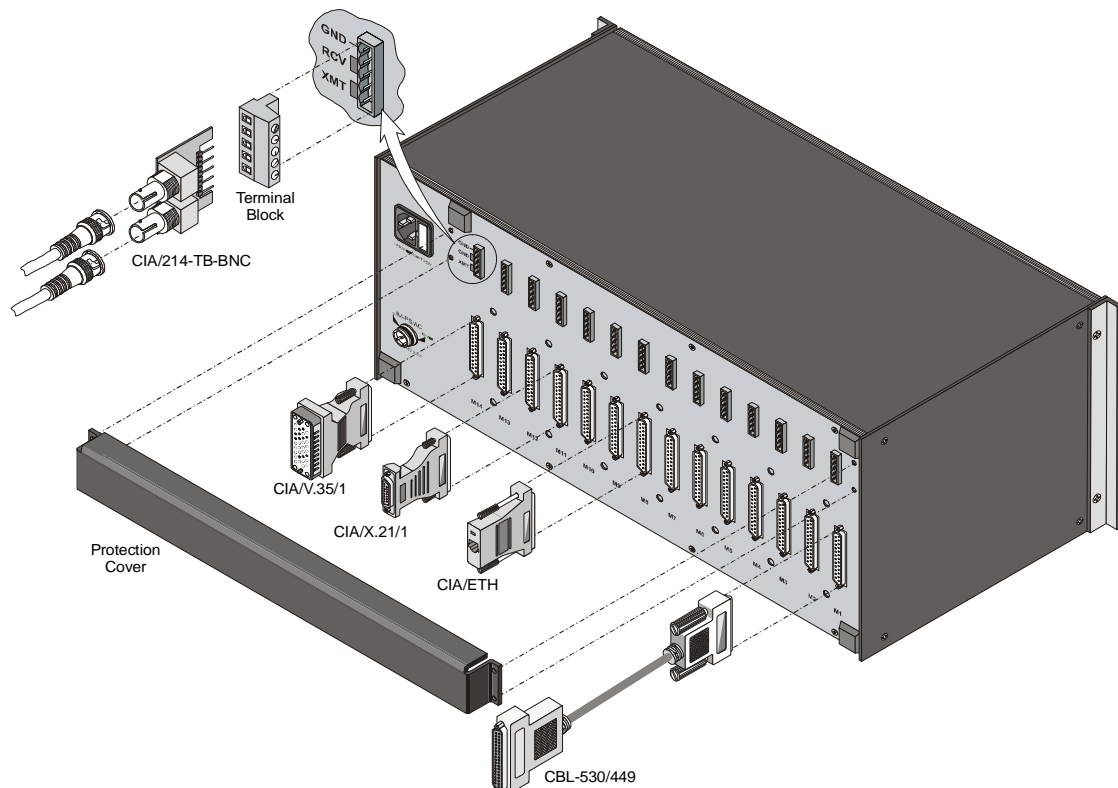


Figure 3. ASM-MN-214 Rear Panel

BNC Coaxial Option

Another version of ASM-MN-214 is the ASM-MN-214/BNC. The line interface of that option terminates in two BNC coaxial connectors. The rear panel of ASM-MN-214/BNC is illustrated in [Figure 4](#).

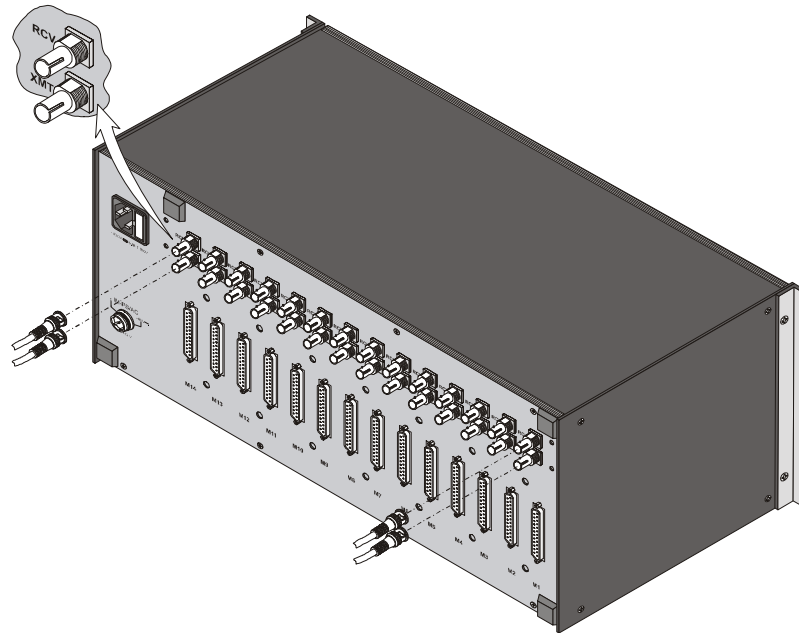


Figure 4. ASM-MN-214-BNC Rear Panel

RJ-45 Option

Another version of ASM-MN-214 is the ASM-MN-214-RJ. The line interface of that option terminates in RJ-45 connectors. The rear panel of ASM-MN-214-RJ is illustrated in [Figure 5](#).

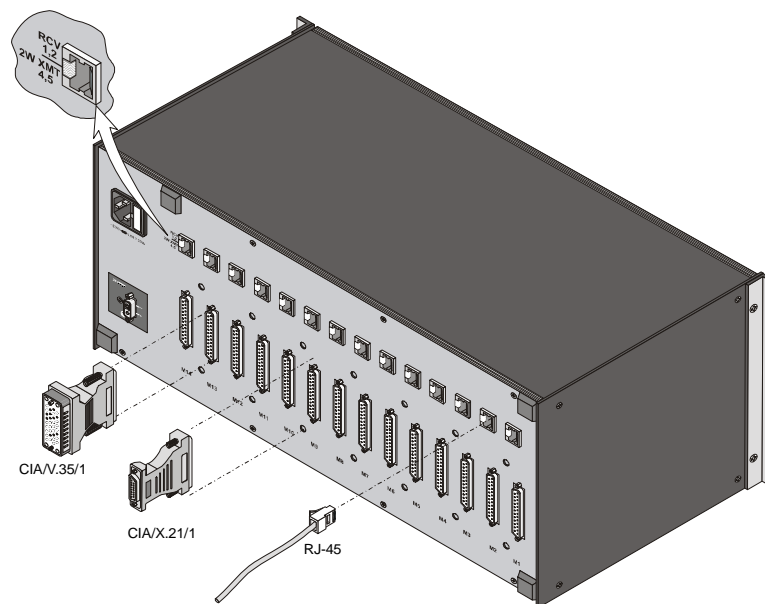


Figure 5. ASM-MN-214-RJ Rear Panel

DTE Interface

The 25-pin D-type female interface connector provides all interface signals for the digital interfaces. Units with an X.21 or V.35 interface require an external mechanical adapter. Two optional attachments, CIA/X21/1 and CIA/V35/1, can be ordered separately from RAD. CIA/X21/1 converts one DB-25 connector to one X.21 15-pin connector. CIA/V35/1 converts the DB-25 connector to a V.35 34-pin connector (see [Figure 3](#)).

Note *FCD units (FCD-1L/R, FCD-2L/R and FCD-2L/R/LTU) require the following interface adapters: CIA-FCD2L/V.35/1, CIA-FCD2L/X.21/1 and CIA-FCD2L/ETU/1.*

V.36 cards are supplied with a RAD adapter cable CBL-530/449, which converts between the DB-25 connector and a V.36 37-pin connector.

Units with Ethernet interface use a CIA/ETH interface adapter, which converts one DB-25 connector to an RJ-45 connector.

5. Technical Specifications

Number of Slots		14
Power	<i>AC Source</i>	100, 115 or 230 VAC ($\pm 10\%$), 100W, 50/60 Hz
	<i>DC Source</i>	-48 VDC, 150W, -36 to -72 VDC 24 VDC, 150W, 18 to 32 VDC
Connectors	<i>Line</i>	5-screw terminal block BNC coax RJ-45
	<i>DTE</i>	14 25-pin, D-type female connectors
Physical	<i>Height</i>	180 mm (7.0 in) (4U)
	<i>Width</i>	48.2 mm (1.9 in)
	<i>Depth</i>	26.7 mm (1.0 in)
	<i>Weight</i>	ASM-MN-214: 3.6 kg (7.9 lb) ASM-214/PS/100: 2 kg (4.4 lb) ASM-214/PS/115: 2 kg (4.4 lb) ASM-214/PS/230: 2 kg (4.4 lb) ASM-214/PS/48: 0.7 kg (1.5 lb) ASM-214/PS/24: 0.6 kg (1.3 lb)
Environment	<i>Temperature</i>	0°–50°C (32°–122°F)
	<i>Humidity</i>	Up to 90%, non-condensing

6. Plug-In Cards

The plug-in card types can be any ASM-MN-214 RAD rack version modems, CSUs/DSUs or converters (any combination of up to 14 cards). [Table 1](#) lists the available plug-in cards.

Note *Maximum number of plug-in cards supported by ASM-MN-214 depends on the card type and its interface. For information on possible limitations, refer to installation and operation manual of the specific card.*

Table 1. ASM-MN-214 Plug-in Cards

Module Type	Module Name	Main Features
Synchronous Short Range Modems	ASMi-24/R	144 kbps, with remote management
	ASM-40/R	2048 kbps
	FOM-E1/T1/R	E1/T1 fiber optic
	FOM-40/R	2048 kbps, fiber optic
Sync/Async Short Range Modems	ASM-10/8/R	19.2 kbps
	ASM-31/R	128 kbps, all rate 2-wire
	ASMi-31/R	128 kbps, with remote management
	FOM-20/R	19.2–256 kbps, fiber optic
Fractional CSU/DSU	FCD-2L/R	E1, LTU/DSU
Rate and Interface Converter	SPD-703-1/R	64 kbps, codirectional
	RIC-E1/R, RIC-T1/R	E1/T1

Note *See specific data sheets for details on each card.*

7. Installing ASM-MN-214



GROUNDING – This unit should always be grounded through the protective earth lead of the power cable. Before connecting AC power to this unit, the mains plug should be inserted only in a socket outlet provided with a protective earth contact. The protective action must not be obstructed by use of an extension cord (power cable) without a protective conductor (grounding). Interrupting the protective (grounding) conductor (inside or outside the unit), or disconnecting the protective earth terminal can make this unit dangerous.

Make sure that only fuses of the required rating, as marked on the ASM-MN-214 rear panel, are used for replacement. Always disconnect the mains cable before removing or replacing the fuse.

Site Requirements and Prerequisites

AC-powered ASM-MN-214 units should be installed within 1.5m (5 ft) of an easily accessible grounded AC outlet capable of furnishing the voltage in accordance with ASM-MN-214 nominal supply voltage.

DC-powered ASM-MN-214 unit requires a -48 VDC or 24 VDC power source, which must be adequately isolated from the main supply.

Allow at least 90 cm (36 in) of frontal clearance for operating and maintenance accessibility. Allow at least 10 cm (4 in) clearance at the rear of the unit for signal lines and interface cables.

The ambient operating temperature of ASM-MN-214 should be 0 to 50°C (32 to 122°F), at a relative humidity of up to 90%, non-condensing.

Installing a Plug-In Card into the ASM-MN-214 Chassis

- To install the plug-in card in the ASM-MN-214 chassis:
 1. Install the ASM-MN-214 chassis in the 19-inch rack.
 2. Insert the plug-in card into one of the ASM-MN-214 slots.
 3. Push the card into the cage until it is fully inserted into the edge connector inside the rack.
 4. Tighten the screws on front panel of the modem card.

Connecting the Interfaces

- To connect interfaces:
 1. Remove the protection cover from the terminal block connectors.
 2. Connect the terminal block to the ASM-MN-214 terminal block connector.
 3. Connect the line to the terminal block as follows:
 - Transmit pair – to the terminals marked XMT
 - Receive pair – to the terminals marked RCV,

- Fifth screw – to ground (optional).

Note *Modems operating over 2-wire lines use XMT terminals for the receive and transmit pairs.*

4. If required, attach the appropriate CIA (CIA/X.21/1, CIA/V.35/1, CIA/ETH) or V.36 adapter cable to the DB-25 connector on the chassis rear panel.
5. Connect the DTE cable to the DB-25 connector, other side of CIA or adapter cable (depending on your version of the card interface).
6. Connect power to the ASM-MN-214 chassis:
 - To connect AC power, connect the power cable to the mains supply.
 - To connect DC power, refer to the 24 VDC supplement or 48 VDC supplement.

Customer Response Form

RAD Data Communications would like your help in improving its product documentation. Please complete and return this form by mail or by fax or send us an e-mail with your comments.

Thank you for your assistance!

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Publication Number: 609-200-03/08

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Publication No. 609-200-03/08

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